

Patent Claims

1. Micro light modulator arrangement (10) comprising at least one light transmission
5 path (23) and at least one controllable shutter (11, 16) arranged for modulation of
light transmitted via said at least one light transmission path (23),

at least a part of said light transmission path comprising a translucent modulator
substrate, and

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said at least a part of said light transmission path being an integral part of a substrate
to which said at least one controllable shutter (11, 16) is anchored.

2. Micro light modulator arrangement according to claim 1,
15 wherein said at least a part of said light transmission path comprises a part of a
microlens arrangement (122).

3. Micro light modulator arrangement according to claim 1 or 2,
wherein said microlens arrangement (122) may be adapted for guiding incoming
20 light through the light transmission path (23) to said at least one controllable shutter.

4. Micro light modulator arrangement according to any of the claims 1 to 3,
wherein said microlens arrangement (122) may be adapted for guiding outgoing light
through the light transmission path (23) from said at least one controllable shutter.

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5. Micro light modulator arrangement according to any of the claims 1 to 4, wherein
the extension of said light transmission path comprises a translucent modulator
substrate of at least 100 micrometer, preferably at least 150 micrometer.

30 6. Micro light modulator arrangement according to any of the claims 1 to 5, wherein

the extension of said at least a part of said light transmission path comprises a translucent modulator substrate not in excess of 3000 micrometer, preferably not in excess of 2000 micrometer.

- 5 7. Micro light modulator arrangement according to any of the claims 1 to 6, the extension of said at least a part of said light transmission path comprising a translucent modulator substrate of at least 200 micrometer, preferably at least 250 micrometer.
- 10 8. Micro light modulator arrangement according to any of the claims 1 to 7, wherein said one light transmission path (23) is a part of a substrate to which the at least one controllable shutter is anchored.
9. Micro light modulator arrangement according to any of the claims 1 to 8,
15 said shutter being controlled by means electrical activation means.
10. Micro light modulator arrangement according to any of the claims 1 to 9, said shutter comprising a mechanical blade which may be moved between at least two positions, and said blade in one of said at least two positions being blocking for
20 transmission of light via said at least a part of said light transmission path (23).
11. Micro light modulator arrangement according to any of the claims 1 to 10, said shutter blade (16) performing a sliding movement with respect the substrate forming said transmission path.
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12. Micro light modulator arrangement according to any of the claims 1 to 11, said modulator comprising at least one microlens arrangement.
13. Micro light modulator arrangement according to any of the claims 1 to 12,
30 said microlens arrangement forming a light input of said modulator.
14. Micro light modulator arrangement according to any of the claims 1 to 13,

said modulator arrangement comprising light-emitting means arranged for transmission of light to the output of the modulator via said at least one microlens arrangement and said at least one light transmission path.

5 15. Micro light modulator arrangement according to any of the claims 1 to 14, wherein said light-emitting means comprises at least one UV light source.

16. Micro light modulator arrangement according to any of the claims 1 to 15, wherein said light-emitting means comprises at least one laser light-emitter.

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17. Micro light modulator arrangement according to any of the claims 1 to 16, comprising at least one blade (16) movable between at least two positions via at least one movement path,

15 said microshutter comprising electrode means for activating movement of said at least one blade between said at least two positions and for positioning the at least one blade in one of said at least two positions,

20 said electrode means being arranged out of reach of the at least one blade and beam in one of said at least two positions.

18. Micro light modulator arrangement according to any of the claims 1 to 17, wherein said translucent light transmission path comprises a part of at least one microlens.

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19. Micro light modulator arrangement according to any of the claims 1 to 18, wherein said light modulator is located on at least one translucent substrate and said light modulator is arranged for modulation of light through said at least one translucent substrate via said at least a part of said light transmission path (23).

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20. Micro light modulator arrangement according to any of the claims 1 to 19,

wherein said substrate, forming said at least one light transmission path (23), forms at least one microlens.

21. Micro light modulator arrangement according to any of the claims 1 to 20,
5 wherein said at least one microlens is adapted to focussing light on said at least one micro-shutter.

22. Micro light modulator arrangement according to any of the claims 1 to 21,
wherein said micro light modulator comprises at least one further set of microlenses.

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23. Micro light modulator arrangement according to any of the claims 1 to 22,
wherein said at least one further set of microlenses are arranged as at least one separate layer.

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24. Micro light modulator arrangement according to any of the claims 1 to 23,
wherein said translucent solid material comprises fused silica.

25. Micro light modulator arrangement according to any of the claims 1 to 24,
wherein said translucent solid material comprises glass.

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26. Micro light modulator arrangement according to any of the claims 1 to 25,
wherein said translucent solid material comprises polymers.

27. Micro light modulator arrangement according to any of the claims 1 to 26,
25 wherein said micro light modulator arrangement comprises at least one blade (SB) movable between at least two positions via at least one movement path (MP), and

electrode means (12, 13) for activating movement of said at least one blade (SB) between said at least two positions and for positioning the at least one blade (SB) in

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one of said at least two positions,

said electrode means (12, 13) being arranged out of reach of the at least one blade (SB) when the blade moves along said at least one movement path.

28. Micro light modulator arrangement according to any of the claims 1 to 27,
5 wherein said connection portion comprises at least one beam (11),

wherein said at least one blade is established on a microshutter platform (MSP) comprising a translucent substrate, such as a glass wafer.

10 29. Micro light modulator arrangement according to any of the claims 1 to 28, wherein said at least two positions comprise at least one position in which the at least one blade (SB) defines a blocking of at least one electromagnetic light transmission path (TP).

15 30. Micro light modulator arrangement according to any of the claims 1 to 29, wherein said shutter blade (SB) is anchored on a (micro) shutter platform (MSP) by anchoring means (15),

said at least one transmission path (TP) extending through the micro shutter platform
20 (MSP) via said solid translucent transmission path (23), and
said at least one transmission path guiding electromagnetic light through the shutter platform which is at least partly defined by means of a masking.

31. Micro light modulator arrangement according to any of the claims 1 to 30,
25 wherein said light-emitting means is adapted for emitting visible light.

32. Micro light modulator arrangement according to any of the claims 1 to 31, wherein the micro light modulator arrangement comprises a plurality of light modulators.

33. Sealing arrangement comprising a micro light modulator according to any of the claims 1-32, wherein said sealing comprises said at least a part of said light transmission path (122).

- 5 34. Sealing arrangement according to claim 33, wherein said sealing further comprises at least one microlens arrangement (121).

35. Sealing arrangement according to claim 33 and 34 ,wherein said sealing encloses said at least one controllable shutter (11, 16).

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